REMARKS

The Office Action mailed on May 30, 2008 has been reviewed and the comments of the Examiner carefully considered. Claims 1-6, 11, 13-16, 18, 19, 22 and 23 are pending. Claim 23 has been canceled. Claims 1, 6, 11, 15, 16, 18 and 22 have been amended. Support for these amendments may be found in the original claim 11, and in the specification at, for example, page 11, lines 1-15; page 12, lines 16-33; and page 14, lines 8-12. No new matter has been added by way of this amendment.

Claim Objections

Claim 11 was objected to for not ending in a period. As applicants have herein amended claim 11 to include the period, applicants respectfully request withdrawal of this claim objection.

Claim 23 was objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. As applicants have herein canceled claim 23, applicants respectfully request withdrawal of this claim objection.

Rejections under 35 U.S.C. § 112

1. Claims 6, 15, 16, 18 and 22 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Regarding claim 6, the Examiner stated that the language "consist of" is closed language while the relevant language of independent claim 1 from which claim 6 depends is open language. Applicants have herein amended claim 6 by replacing the language "consist of" with "comprise".

Regarding claims 15 and 16, the Examiner stated that there is insufficient antecedent basis for the limitation "the wound contacting layer". Applicants have herein amended independent claim 1 to include this limitation. Regarding claim 15, the Examiner also stated that the language "may comprise" renders the claim indefinite. Applicants have herein amended claim 15 by replacing the phrase "may comprise" with "comprises". Regarding claim 16, the Examiner also stated that it was unclear whether the "intermediate layer" or the "barrier layer" comprises the matrix. Also, it was allegedly unclear whether the "outer layer" in claim 16 is the

"wound contacting layer". Thus, the Examiner alleged that the configurations and layers of claims 15 and 16 are unclear. Applicants have herein amended claim 1 to clarify the configuration and layers of the instant invention as disclosed in claims 15 and 16. As amended, claim 1 teaches:

> Claim 1: (Currently amended) A wound dressing comprising:
>
> I. a liquid permeable wound contacting layer;
>
> II. an intermediate layer; and
>
> III. an outer, liquid-impervious backing layer;
>
> wherein at least one of said layers comprises:
>
> (a) a donor layer comprised of a therapeutic agent; and
>
> (b) a barrier layer, said barrier layer comprising a matrix comprising polymers joined by cross-linkages which cross-linkages comprise oligopeptidic sequences which are cleavable by a protease associated with wound fluid such that the rate of release of the therapeutic agent increases in the presence of the protease, wherein the barrier layer initially separates the donor layer in the wound dressing from wound fluid when in use.

Regarding claim 18, the Examiner alleged that the phrases "apertured sheet" and "applied thereto in occlusive fashion" are unclear and that it is not clear what falls within the metes and bounds of the claim. Applicants have herein amended claim 18 as follows:

> Claim 18: (Currently Amended) A wound dressing according to claim 1 wherein the barrier layer comprises ~~an apertured~~ a sheet comprising apertures ~~having a composition comprising the cross-linked polymers applied thereto in occlusive fashion~~; wherein the apertures are substantially blocked by the matrix before exposure to wound fluid.

Regarding claim 22, the Examiner alleged that it is unclear whether the recited layers "an absorbent layer and/or backing layer" are in addition to the layers recited in claim 1 or if the layers are specific types of donor layers, for example. Applicants have herein amended claim 22 to clarify that the instant invention may further comprise at least one additional layer selected from the group of absorbent layers and backing layers.

Applicants respectfully submit that, as claims 6, 15, 16, 18 and 22 have been amended, the rejections under 35 U.S.C. § 112 are now moot. Applicants respectfully request withdrawal of these rejections and submit that claims 6, 15, 16, 18 and 22 are now in condition for allowance.

2. Claims 1-6, 13-16, 18-19 and 22-23 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Regarding independent claim 1, the Examiner alleged that the specification fails to provide adequate written description for the genus of the claims and does not reasonably convey to one skilled in the relevant art that the applicants, at the time the application was filed, had possession of the entire scope of the invention. In response to applicants' arguments filed on March 11, 2008, the Examiner stated that though the claims are drawn to a particular genus of proteases – *i.e.*, proteases associated with wound fluid such that the rate of the release of the therapeutic agent increases in the presence of the protease – there is allegedly no correlation provided between structure and function such that one could identify the common structural attributes of the oligopeptide sequences. Applicants respectfully disagree.

Applicants respectfully submit that the scope of applicants instant claim 1 is not directed to all oligopeptidic sequences or all proteases, but rather a particular genus of oligopeptidic sequences that are cleavable by a particular genus of proteases, as recited in the claim.

Further, the group of proteases associated with wound fluid are known to one having ordinary skill in the art. For example, the instant specification references, and herein incorporates in its entirety, Pachence et al. (WO 00/64486) which discloses amino acid cleavage sequences of various enzymes associated with wound infection. *See, e.g.*, page 3 lines 1-21 of the incorporated WO 00/64486 reference:

> It is well known that various proteolytic enzymes are produced in greater quantity by cells near or at the site of disease, or at the site of infection by microbes or host cells. For example, matrix metalloproteinases (MMPs) are a major family of enzymes which regulate extracellular matrix composition and modulate the interaction between cells and ECM (Massova, *et al.*, 1998). In addition to the normal role of MMPs in healing and metabolism, this enzyme family is also implicated in various pathological processes, including chronic inflammation, arthritis, and cancer…Furthermore, numerous enzymes are produced by pathogens at the site of infection, or by host cells (such as leukocytes) that are involved in combating infection. Thrombin-like alanine

> aminopeptidase and elastase-like enzymatic activity are known to be common in bacterial infections (Finlay and Cossart, 1997), and the amino acid cleavage sequences of such enzymes are well-documented.

Therefore, because the scope of applicants instant claim 1 is not directed to all oligopeptidic sequences or all proteases, but rather a particular genus of oligopeptidic sequences that are cleavable by a particular genus of proteases – *i.e.*, proteases associated with wound fluid such that the rate of the release of the therapeutic agent increases in the presence of the protease – and because these proteases are known to one of ordinary skill in the art, applicants respectfully submit that the specification contains a sufficient written description of the invention "that would reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention".

The Examiner also alleged that the claims of the instant application fail to comply with the written description requirement because no examples are provided of either a matrix comprising polymers and a therapeutic agent, or of specific wound dressings including a therapeutic agent: "Although examples have been provided of components of the wound dressing no examples have been provided of a wound dressing as claimed". Applicants respectfully disagree.

As the Examiner noted, the instant specification and claims disclose all of the individual components of applicants' invention including therapeutic agents suitable for use therein. Applicants respectfully submit that, as explained by the Federal Circuit: "examples are not necessary to support the adequacy of a written description". *See, e.g.*, Falkner v. Inglis, 448 F. 3d 1357, 1366 (Fed. Cir. 2006). Additionally, unique cleavage by particular enzymes, isoelectric points of fragments, detailed restriction enzyme maps, a comparison of enzymatic activities, or antibody cross-reactivity may be sufficient to show possession of the claim invention to one of skill in the art. *See, e.g.*, Lockwood v. American Airlines, 107 F. 3d 1565, 1572 (Fed. Cir. 1997). As in Lockwood, here applicants have shown unique cleavage of particular oligopeptidic sequences by particular proteases such that the rate of release of the therapeutic agent increases in the presence of these particular enzymes. Thus, applicants have sufficiently shown possession of the claimed invention.

Applicants respectfully submit that the rejection of claims 1-6, 13-16, 18-19 and 22-23 under 35 U.S.C. § 112, first paragraph, has been overcome and should be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-4, 6, 11, 13-16, 18-19, and 22-23 currently stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sojomihardjo et al. (WO 96/40829).

Regarding independent claim 1, the Examiner stated that although Sojomihardjo et al. does not use the word "layers", because Sojomihardjo et al. teaches encapsulation, the art meets the structural limitations of applicants' claim 1 because there are different layers including an inner layer with the biologically active materials and an outer layer with the cross-linked polymer. Applicants respectfully disagree.

Applicants respectfully submit that Sojomihardjo et al. does not anticipate applicants' currently amended claim 1 because Sojomihardo et al. does not disclose all elements contained therein:

> Claim 1: (Currently amended) A wound dressing comprising:
>
> I. a liquid permeable wound contacting layer;
>
> II. an intermediate layer; and
>
> III. an outer, liquid-impervious backing layer;
>
> wherein at least one of said layers comprises:
>
> (a) a donor layer comprised of a therapeutic agent; and
>
> (b) a barrier layer, said barrier layer comprising a matrix comprising polymers joined by cross-linkages which cross-linkages comprise oligopeptidic sequences which are cleavable by a protease associated with wound fluid such that the rate of release of the therapeutic agent increases in the presence of the protease, wherein the barrier layer initially separates the donor layer in the wound dressing from wound fluid when in use.

Sojomihardjo et al. provides a method of modifying polypeptides by the introduction of unsaturated group(s) into the polypeptides via linkage to amino acid residues on the polypeptide such that the modified polypeptides have the ability to rapidly cross-link to themselves under

suitable conditions (*see e.g.*, Abstract). Sojomihardjo et al. does not disclose a wound dressing comprising a wound contact layer, an intermediate layer, or an outer backing layer, wherein at least one said layers comprises a donor layer and a barrier layer. Sojomihardjo et al. does not disclose that these cross-linkages comprise oligopeptidic sequences which are cleavable by a protease associated with wound fluid such that the rate of release of the therapeutic agent increases in the presence of the protease. Sojomihardo et al. merely discloses that peptide sequences, including GFGD, may be modified to become a cross-linking peptide, but does not disclose that the cross-linkages themselves are specific peptide sequences, including GFGD (page 15, line 26). In contrast, the specific oligopeptidic sequences, including GFGD, disclosed in applicants' instant application comprise the cross-linkages in the barrier layer.

Thus, Sojomihardjo et al. does not suggest, much less teach, the present invention. Consequently, applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b). Further, applicants submit that claims 2-4, 6, 11, 13-16, 18-19, and 22-23 are thereby allowable as written as depending from an allowable independent claim.

Rejections under 35 U.S.C. § 103

Claims 1-6, 11, 13-16, 18-19, and 22-23 currently stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sojomihardjo et al. in further view of Ulbrich et al. (Biomaterials 1980 v1 199-204 as cited in IDS).

Regarding independent claim 1, the Examiner alleged that Sojomihardjo et al. discloses the limitations of claims 1-5, 6, 11, 13-16, 18-19, and 22-23, but does not expressly teach the polymer N-(2-hydroxypropyl) methacrylamide (HPMA) as recited in claim 5. The Examiner stated that because Ulbrich et al. teaches copolymers of HPMA joined by crosslinks containing oligopeptide sequences, and because Sojomihardo et al. discloses the use of copolymers including methacrylamide copolymers, then taken together, the HPMA as described by Ulbrich et al. with the GRGD peptide sequence as taught by Sojomihardjo et al. meets the claimed limitations. Applicants respectfully disagree.

Ulbrich et al. teaches copolymers of HPMA joined by crosslinks containing oligopetpide sequences. Ulbrich et al. does not disclose a wound dressing comprising a wound contact layer, an intermediate layer, or an outer backing layer, wherein at least one said layers comprises a

donor layer and a barrier layer. Ulbrich et al. does not disclose a barrier layer comprising a matrix comprising polymers joined by cross-linkages. Ulbrich et al. does not disclose that these cross-linkages comprise oligopeptidic sequences which are cleavable by a protease associated with wound fluid such that the rate of release of the therapeutic agent increases in the presence of the protease. Thus, as Ulbrich et al. cannot cure the deficiencies of Sojomihardjo et al., applicants respectfully submit that the instant claim 1 is allowable as written.

Consequently, applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a). Further, applicants submit that claims 2-6, 11, 13-16, 18-19, and 22-23 are thereby allowable as written as depending from an allowable independent claim.

Obviousness Type Double Patenting Rejections

Claims 1-6, 13-16, 18-19, and 22-23 stand rejected by the Examiner under the judicially created doctrine of obviousness type double patenting as being unpatentable over the claims of prior U.S. Patent No. 7,361,634. Applicants herein enclose a Terminal Disclaimer for the assignee, executed by the attorney of record, to obviate the Double Patenting Rejection under 37 C.F.R. § 1.321(c) for prior U.S. Patent No. 7,361,634. Applicants therefore respectfully request allowance of claims 1-6, 13-16, 18-19, and 22-23.

Claims 1-3, 13, and 23 stand provisionally rejected by the Examiner under the judicially created doctrine of obviousness type double patenting as being unpatentable over the claims of co-pending U.S. Patent Appln. No. 10/529,156. Applicants herein enclose a Terminal Disclaimer for the assignee, executed by the attorney of record, to obviate the Double Patenting Rejection under 37 C.F.R. § 1.321(c) for co-pending U.S. Patent Appln. No. 10/529,156. Applicants therefore respectfully request allowance of claims 1-3, 13 and 23.

Claims 1-3, 12-16, 18-19, and 22-23 stand provisionally rejected by the Examiner under the judicially created doctrine of obviousness type double patenting as being unpatentable over the claims of co-pending U.S. Patent Appln. No. 10/497,442. Applicants herein enclose a Terminal Disclaimer for the assignee, executed by the attorney of record, to obviate the Double Patenting Rejection under 37 C.F.R. § 1.321(c) for co-pending U.S. Patent Appln. No. 10/497,442. Applicants therefore respectfully request allowance of claims 1-3, 12-16, 18-19, and 22-23.

VIA ELECTRONIC FILING

Claims 1-3, 6, 11, 13-16, 18-19, and 22-23 stand provisionally rejected by the Examiner under the judicially created doctrine of obviousness type double patenting as being unpatentable over the claims of co-pending U.S. Patent Appln. No. 10/579,897. Applicants herein enclose a Terminal Disclaimer for the assignee, executed by the attorney of record, to obviate the Double Patenting Rejection under 37 C.F.R. § 1.321(c) for co-pending U.S. Patent Appln. No. 10/579,897. Applicants therefore respectfully request allowance of claims 1-3, 12-16, 18-19, and 22-23.

Conclusion

Applicants respectfully submit that the claims are in condition for allowance. An early Notice of Allowance is therefore earnestly solicited. Applicants invite the Examiner to contact the undersigned at (215) 963-5337 to clarify any unresolved issues raised by this response.

The Director is hereby authorized to charge/credit Deposit Account No. **50-0310** (Billing No. 101713-5027) for any other required fees, deficiencies or overpayments in connection with this Response.

Respectfully submitted,

PATRICK TROTTER ET AL.

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